

MINING APPLICATION

NO. ACT/DAS/008 L

Date 5-12-78

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING  
1588 West North Temple  
Salt Lake City, Utah 84116



NOTICE OF INTENTION TO COMMENCE MINING OPERATIONS  
(See Rule M of General Rules and Regulations)

1. Name of Applicant or Company N L INDUSTRIES, INC. - MAGNESIUM DIVISION  
Corporation (X ) Partnership ( ) Individual ( )
2. Address 238 North 2200 West; Salt Lake City, Utah 84116  
Permanent Temporary
3. Name and title of person representing company James B. Chaney, General Manager
4. Address (same above) Office Phone (801) 532-2043
5. Location of Operation Tooele Sec. T. 2 N. R. 6 W.  
County
6. Name of Mine Rowley magnesium facilities.
7. Mineral to be mined: Mining method:  

( ) Coal	( ) Flagstone	<u>Solar Ponding</u>
( ) Copper	( ) Gravel	
( ) Manganese	( ) Shale	
( ) Iron Ore	( ) Uranium	
( ) Phosphate	( ) Gilsonite	
( ) Potash	( ) Bituminous Sandstone	
( ) Fluorspar	( ) Tungsten	
(X) Other (specify) <u>MgCl<sub>2</sub></u>		
8. Have you or any person, partnership or corporation associated with you received an approved Notice of Intention to Commence Mining Operations by the State of Utah for operations other than described herein?  
( ) Yes (X) No  
If yes, list all approval numbers now under surety:
9. Owner/Owners of record of the surface area within the land to be affected:  

<u>State Lease No. ML-18779</u>	Address <u>Utah State Land Board</u>
	<u>State Capitol Building</u>
	Address <u>Salt Lake City, Utah 84114</u>
	Address _____
	Address _____



10. Owner/Owners of record of minerals to be mined:

State Lease ML-18779

Address State Land Board - State Capitol Bldg.

Address

Address

Address

11. Owner/Owners of record of all other minerals within any part of the land affected:

...NONE

Address

Address

Address

- 11a. Have the above owners been notified in writing?  
( ) Yes (X) No

12. Source of Operator's legal right to enter and conduct operations on land to be covered by the Notice State Lease ML-18779

13. Approximate acreage to be disturbed:

A) Mining Operation Area - 36,000 acres  
(include operations, storage, & disposal area)

B) Access Road or Haulageway - 35 ~~acres~~ miles

C) Drainage System - None acres

TOTAL ACRES: 36,000

14. Give the names and post office addresses of every principal Executive, Officer, Partner, (or person performing a similar function) of Applicant:

Name:

Title:

Address:

a. Ray C. Adam Chairman & Chief Executive Officer N L Industries, Inc.

b. Richard A. Donovan Executive Vice President 1230 Avenue of the Americas  
New York, N.Y. 10020

C.

d.

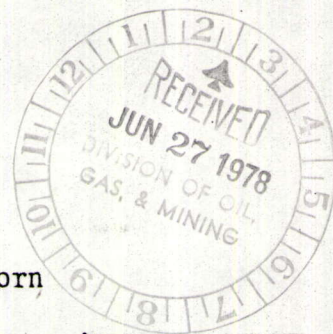
15. Has Applicant, any subsidiary or affiliate or any person, partnership, association, trust, or corporation controlled by or under common control with Applicant, or any person required to be identified by Item 14, ever had an approval of a Notice of Intention withdrawn or has surety relating thereto ever been forfeited? ☐ Yes ☒ No

If yes, explain:

100015



STATE OF UTAH  
COUNTY OF SALT LAKE



I, James B. Chaney, having been duly sworn, depose and attest that all of the representations contained in the foregoing application are true to the best of my knowledge; that I am authorized to complete and file this application on behalf of the Applicant and this application has been executed as required by law.

Signed: James B. Chaney

General Manager - MAGNESIUM DIVISION  
N L INDUSTRIES, INC.

Taken, subscribed and sworn to before me the undersigned authority in my said county, this 23<sup>rd</sup> day of June, 19 78.

Notary Public: Winifred C. Trythall

My Commission Expires: July 31, 1978

PLEASE NOTE:

Section 40-8-13(2) of the Mined Land Reclamation Act provides as follows:

"Information relating to the location, size, or nature of the deposit and marked confidential by the operator, shall be protected as confidential information by the Board and the Division and not be a matter of public record in the absence of a written release from the operator, or until the mining operation has been terminated as provided in subsection (2) of section 40-8-21."

Is confidential information contained herein?

YES \_\_\_\_\_ (Initial)

NO \_\_\_\_\_ (Initial)

Sections desired to be maintained as confidential information -

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



June 26, 1978

Mr. Ronald W. Daniels  
Coordinator of Mine Land Development  
Department of Natural Resources  
Division of Oil, Gas & Mining  
1580 West North Temple  
Salt Lake City, Utah 84116

Dear Mr. Daniels:

I am returning herewith the signed Forms MR-1 and MR-2, which you discussed with me.

Should you need additional information, please let me know.

Very truly yours,

A handwritten signature in cursive script, reading 'W. R. McCormick', written over a horizontal line.

W. R. McCormick  
Assistant to the General Manager

WRM:wt  
attachs.

**Magnesium Division**/NL Industries, Inc.  
238 North 2200 West, Salt Lake City, Utah 84116  
Tel. (801) 532-2043, Rowley Plant (801) 532-1522

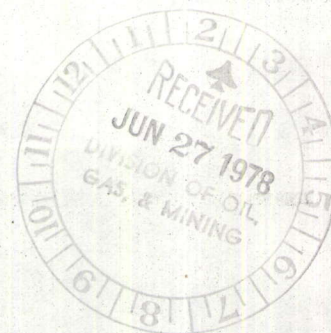
100017



MINING APPLICATION  
NO. \_\_\_\_\_

Date 5-12-78

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING  
1588 West North Temple  
Salt Lake City, Utah 84116



MINING AND RECLAMATION PLAN

(Other forms may be used in lieu of MR 2, provided they contain the same information)

1. Name of Applicant or Company N L INDUSTRIES, INC. - MAGNESIUM DIVISION
2. Proposed type of operation Solar Ponding Feed For Magnesium Refinery.
3. (a) Prior Land Use(s) Bed of Great Salt Lake - Stansbury Basin  
(b) Current Land Use(s) Solar Ponding  
(c) Possible or Prospective Future Land Use(s) Revert to Lake bed.
4. What vegetation exists on the land proposed to be affected ..None  
  
(a) Types and Estimated Percent cover or density: ..None
5. What is the pH range of soil before mining? \_\_\_\_\_ pH  
Name of Person or Agency and method of determining pH \_\_\_\_\_
6. Site elevation above sea level 4203'
7. In case of coal, oil shale, and bituminous sandstone:  
Principal seam(s) and thickness(es) ( Depends on State of Utah stewardship  
8. Estimated duration of mining operations (of South Arm-Great Salt Lake. Has been  
(allowed to lose magnesium concentration.
9. Has overburden, waste or rejected materials been classified as acid or alkali producing? ( ) Yes (X) No  
Does the above material being moved have any other characteristics affecting revegetation? \_\_\_\_\_
10. Will any underground workings or aquifers be encountered? ( ) Yes (X) No  
Describe \_\_\_\_\_  
Is there an active discharge of water from abandoned deep mines on or crossing the land affected? ( ) Yes (X) No If yes, describe the quality of water being discharged. \_\_\_\_\_

100008



11. Describe specifically a detailed procedure for: (see Attachments 1 and 2)
- (a) The mining sequence
  - (b) The procedure for constructing and maintaining access roads, to include a typical cross-section and a profile of the proposed road grades.
  - (c) The procedure for site preparation including removing trees and brush.
  - (d) The method for removing and stockpiling topsoil or disturbed materials.
  - (e) The method for the placement or containment of all disturbed materials, to include the method for handling of all acid or alkali-producing and toxic materials.
  - (f) A procedure for final stabilization of disturbed materials.

GRADING AND REGRADING

Specifically describe:

- (a) Typical cross-section of regrading.
- (b) The method of spreading topsoil or upper horizon material on the regraded area and indicate the approximate thickness of the final surfacing material.
- (c) What type of soil treatment will be utilized.
- (d) The method of drainage control for the final regraded area.
- (e) Maximum grading slope.

TESTING

1. Describe method for testing stability of reclamation fill material.

Does not apply, as major backfilling will not be performed,

Describe method for the testing of soil that is intended to support vegetation

Standard nutrient tests for N, P and K.

2. Describe any soil treatment employed as an aid to revegetation \_\_\_\_\_

Fertilizer, based on above test,

3. Describe surface preparation of areas intended to support vegetation:

Scarifying,

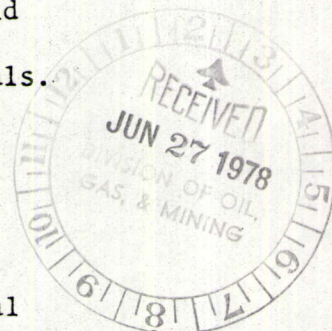
REVEGETATION

1. Revegetation to be completed by:

( ☒ ) Operator  
( ☐ ) Soil Conservation District  
( ☐ ) Private Contractor  
( ☐ ) Other (specify) \_\_\_\_\_

( ☐ ) Hydroseeding  
( ☐ ) Aerial Seeding  
( ☐ ) Conventional or Rangeland Drilling  
( ☐ ) Broadcast and Drag  
( ☐ ) Other \_\_\_\_\_

100009







June 26, 1978

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Coordinator of Mine Land Development  
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Division of Oil, Gas & Mining  
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Assistant to the General Manager

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(See Rule M of General Rules and Regulations)

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Corporation (X ) Partnership ( ) Individual ( )
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3. Name and title of person representing company James B. Chaney, General Manager
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10. Owner/Owners of record of minerals to be mined:

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_____	Address _____
_____	Address _____
_____	Address _____

11. Owner/Owners of record of all other minerals within any part of the land affected:

<u>...NONE</u>	Address _____
_____	Address _____
_____	Address _____

11a. Have the above owners been notified in writing?  
( ) Yes (X) No

12. Source of Operator's legal right to enter and conduct operations on land to be covered by the Notice State Lease ML-18779

13. Approximate acreage to be disturbed:

A) Mining Operation Area -	<u>36,000</u>	acres
(include operations, storage, & disposal area)		
B) Access Road or Haulageway -	<u>35</u>	<del>acres</del> miles
C) Drainage System -	<u>None</u>	acres

TOTAL ACRES:	<u>36,000</u>
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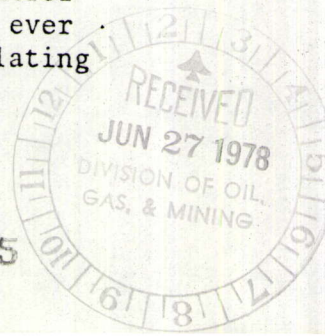
14. Give the names and post office addresses of every principal Executive, Officer, Partner, (or person performing a similar function) of Applicant:

Name:	Title:	Address:
a. <u>Ray C. Adam</u>	<u>Chairman &amp; Chief Executive Officer</u>	<u>N L Industries, Inc.</u>
b. <u>Richard A. Donovan</u>	<u>Executive Vice President</u>	<u>1230 Avenue of the Americas</u> <u>New York, N.Y. 10020</u>
c. _____		
d. _____		

15. Has Applicant, any subsidiary or affiliate or any person, partnership, association, trust, or corporation controlled by or under common control with Applicant, or any person required to be identified by Item 14, ever had an approval of a Notice of Intention withdrawn or has surety relating thereto ever been forfeited? ( ) Yes (X) No

If yes, explain:

100015





STATE OF UTAH  
COUNTY OF SALT LAKE



I, James B. Chaney, having been duly sworn, depose and attest that all of the representations contained in the foregoing application are true to the best of my knowledge; that I am authorized to complete and file this application on behalf of the Applicant and this application has been executed as required by law.

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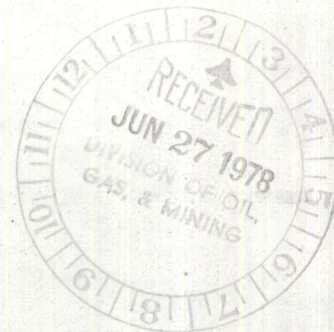
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\_\_\_\_\_  
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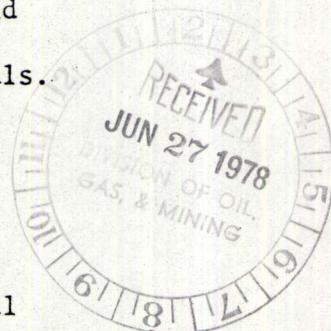
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REVEGETATION

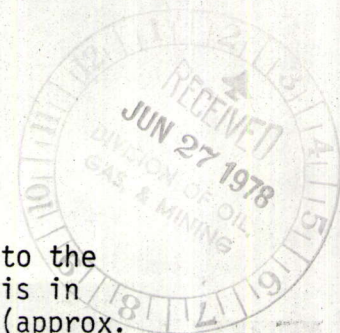
1. Revegetation to be completed by:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Operator        | <input type="checkbox"/> Hydroseeding                    |
| <input type="checkbox"/> Soil Conservation District | <input type="checkbox"/> Aerial Seeding                  |
| <input type="checkbox"/> Private Contractor         | <input type="checkbox"/> Conventional or Rangeland Drill |
| <input type="checkbox"/> Other (specify) _____      | <input type="checkbox"/> Broadcast and Drag              |
|   | <input type="checkbox"/> Other _____                     |

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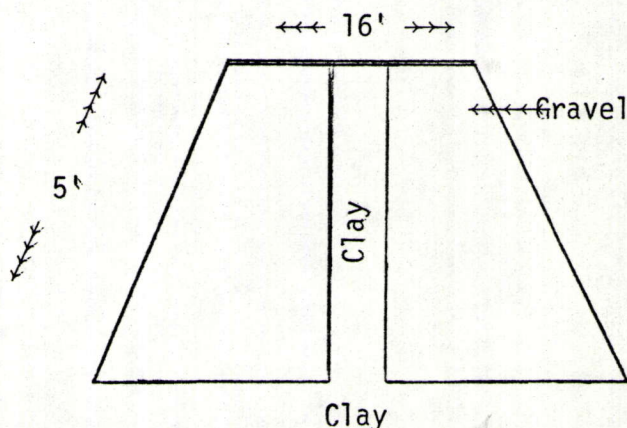


11. (a) The mining sequence.

South Arm lake brine is pumped or allowed to flow into the Stansbury Basin solar ponds. A three-pond system is in operation. Lake brine enters the #1 Solar Pond (approx. 30,000 acres) when about 70 percent of the NaCl in the lake water is precipitated. Effluent from #1 Pond is pumped to #2 Solar Pond. #2 Pond is divided into three smaller areas: 2 West East, 2 West West and 2 West North. In #2 Pond the majority of the balance of the original NaCl in the lake brine is precipitated, as well as precipitating carnallite ( $\text{NaCl} \cdot \text{KCl}$ ). Effluent of #2 Pond is pumped to #3 Solar Pond. #3 Solar Pond is divided into three segments: 3 East, 3 Center and 3 West. In Solar Pond #3, Kainite is precipitated, leaving a concentrated brine assaying around 7.5 percent Mg. This concentrated brine is pumped to a storage pond at the Refinery facilities site, and constitutes the feed to the magnesium plant.

(b) The procedure for constructing and maintaining access roads . . .

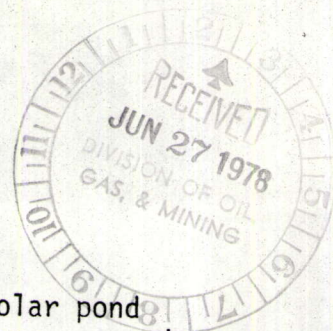
Roads have been built on top of the solar pond dikes and on the levee protecting the pond system from the artificially high water level in the South Arm of the Great Salt Lake. These roads are 16 feet wide and about 5 feet deep; constructed of gravel, and have a clay key member in the middle which keys into the clay of the original lakebed....having a 2:1 slope.



Dikes approved by State Engineer and levees by U. S. Corps of Engineers.

(c) The procedure for site preparation . . .





11. (c) ..cont'd.

There were no trees or brush to be removed in the solar pond area. At the plant site, no trees, but brush was removed by bulldozer and then leveled with roadgrader for building site preparation.

(d) The method for removing and stockpiling topsoil . . .

In the solar pond area, borrow pit material used to make dike roads. At the plant site, most of the disturbed topsoil was used to construct a 250,000,000 gallon concentrated  $MgCl_2$  brine storage pond of a 20-foot depth.

(e) The method for placement or containment of all disturbed materials . . .

At the solar pond area, no method for disturbed materials needed, as at conclusion of operation the area would gradually revert to its original condition; and no procedure necessary for handling NaCl that will be present, as NaCl was there in its original condition.

At the plant site (which is all within fence), not necessary for placement or containment of disturbed material except if building removed, to reseed plant area under fence. Land area outside the fence remains in its original condition. Presently, the plant has a Plant Discharge Pond of some 16 acres which is totally enclosed and handles all waste material from the plant. This was built and operated under EPA Permit No. UT-0000779.

(f) A procedure for final stabilization of disturbed materials.

This procedure for the solar pond area would be to allow the area to revert to its original condition by making breaks in the pond system levees and dikes to allow the Lake waters to accommodate to their original condition.

#### GRADING AND REGRADING

(a), (b), (c), (d) and (e)....

At the solar pond area, none of these will be necessary except for any agreement set forth in State Lease ML-18779. Dikes will be breached.

At the plant site, if and when buildings are removed, the area would be graded and seeded to blend into the surrounding area which is in its original condition.



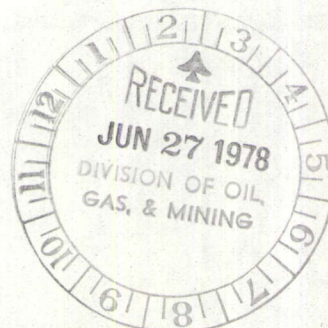
2. Will Mulch be used? ( ) Yes ( ) No (If necessary, will be used.)  
Type: Straw Rate/Acre One Ton/Acre 1/4¢.

3. Revegetation Plan and Schedule -

Species	Rate/ Acre	Planting Location	Facing N-S-E-W	Season to be replanted
Crested Wheat Grass	4#/acre	Plant area	All aspects	Fall
Intermed. Wheat <del>Grass</del> <sup>Germ</sup>	4#/acre	" "	" "	"
Russian Wild Rye	2#/acre	" "	" "	"
Indian Rice Grass	1#/acre	" "	" "	"
Four Wing Salt Bush	1#/acre	" "	" "	"
Yellow Sweet Clover	1#/acre	" "	" "	"

4. Will affected area be subject to livestock or wildlife grazing?..At plant site.  
(x) Yes ( ) No Will vegetation protection be needed? Plant fence will  
be left intact until vegetation established.

5. Will irrigation be used: ( ) Yes (X) No Type \_\_\_\_\_
6. Describe maintenance procedures for revegetation if needed, until surety  
release is granted. One-time replanting effort will be made if reseeding  
not successful.





STATE OF UTAH  
COUNTY OF SALT LAKE

I, James B. Chaney, having been duly sworn  
depose and attest that all of the representations contained in the foregoing  
application are true to the best of my knowledge; that I am authorized to  
complete and file this application on behalf of the Applicant and this  
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record in the absence of a written release from the  
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terminated as provided in subsection (2) of section  
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Is confidential information contained herein?

YES \_\_\_\_\_ (Initial)

NO \_\_\_\_\_ (Initial)

Sections desired to be maintained as confidential information -

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\_\_\_\_\_  
\_\_\_\_\_

